front planar layer and the back planar layer can be rectangular layers with rounded corners. In these and other embodiments, the encapsulating structure can have an opening through a region inside an inner perimeter of the annular magnetic alignment component.

[0432] In some embodiments, an alignment module can comprise: an annular magnetic alignment component including a plurality of arcuate magnets, an encapsulating structure surrounding and holding the arcuate magnets in an annular arrangement; and a near-field communication (NFC) coil disposed within the encapsulating structure and coaxial with the annular magnetic alignment component, the NFC coil coupled to an NFC tag circuit. In these and other embodiments, each arcuate magnet can have: an inner arcuate region having a magnetic polarity oriented in a first axial direction; an outer arcuate region having a magnetic polarity oriented in a second axial direction opposite the first axial direction; and a non-magnetized central arcuate region disposed between the inner arcuate region and the outer arcuate region. In these and other embodiments, the NFC coil can be disposed inboard of the annular magnetic alignment component, and other NFC tag circuit components can be disposed inboard of the annular magnetic alignment component and or in gaps between certain arcuate magnets of the annular magnetic alignment component. In these and other embodiments, the encapsulating structure can comprise: a front planar layer; a back planar layer; and a magnet-holding layer, the magnet-holding layer having a circular opening therethrough to accommodate the annular magnetic alignment component (and the NFC coil). In these and other embodiments, the magnet-holding layer and the arcuate magnets can have equal thicknesses. In these and other embodiments, the magnet-holding layer can include a disc of material filling a region interior to the annular magnetic alignment component and the NFC coil. In these and other embodiments, an alignment module can further comprise: a rotational alignment component comprising a rectangular magnet and disposed outboard (or outside a perimeter) of the annular magnetic alignment component, and the magnet-holding layer can have a rectangular opening therethrough to accommodate the rotational alignment component.

[0433] Accordingly, although the invention has been described with respect to specific embodiments, it will be appreciated that the invention is intended to cover all modifications and equivalents within the scope of the following claims.

What is claimed is:

1. A portable electronic device comprising:

a housing having an interface surface;

an inductive coil disposed within the housing and having an axis normal to the interface surface, the inductive coil being configured to transfer power wirelessly through the interface surface;

an annular magnetic alignment component disposed within the housing coaxial with and outboard of the inductive coil, the annular magnetic alignment component including a plurality of sectors, each sector having a magnetic orientation with a radial component; and

a near-field communication (NFC) coil disposed within the housing and coaxial with the inductive coil, the NFC coil configured to wirelessly exchange signals with another device through the interface surface.

2. The portable electronic device of claim **1** wherein the NFC coil is coupled to an NFC reader circuit.

3. The portable electronic device of claim **1** wherein the NFC coil is positioned in a gap between the inductive coil and the annular magnetic alignment component.

4. The portable electronic device of claim **1** wherein each sector of the annular magnetic alignment component comprises one or more arcuate magnets, each arcuate magnet having a magnetic polarity oriented in a radial direction.

5. The portable electronic device of claim **1** wherein alternating sectors of the annular magnetic alignment component have opposite magnetic orientations.

6. The portable electronic device of claim **1** wherein the annular magnetic alignment component includes a gap between two of the sectors.

7. The portable electronic device of claim **6** wherein an electrically conductive path connecting the NFC coil to an NFC reader circuit passes through the gap.

8. The portable electronic device of claim **1** further comprising:

a rotational alignment component comprising a magnet disposed within the housing and outboard of the annular magnetic alignment component.

9. A wireless charging device comprising:

a housing having a charging surface;

an inductive coil disposed within the housing and having an axis normal to the charging surface, the inductive coil being configured to transfer power wirelessly through the charging surface;

an annular magnetic alignment component disposed within the housing coaxial with and outboard of the inductive coil, the annular magnetic alignment component including a plurality of sectors, each sector comprising:

an inner arcuate region having a magnetic polarity oriented in a first axial direction;

an outer arcuate region having a magnetic polarity oriented in a second axial direction opposite the first axial direction; and

a non-magnetized central arcuate region disposed between the inner arcuate region and the outer arcuate region; and

a near-field communication (NFC) coil disposed within the housing and coaxial with the inductive coil, the NFC coil configured to wirelessly exchange signals with another device through the charging surface.

10. The wireless charging device of claim **9** further comprising:

an annular magnetic shield disposed at a distal surface of the annular magnetic alignment component.

11. The wireless charging device of claim **9** wherein the NFC coil is coupled to an NFC tag circuit.

12. The wireless charging device of claim **9** wherein the NFC coil is positioned between the inductive coil and the annular magnetic alignment component.

13. The wireless charging device of claim **9** wherein the first axial direction has a south magnetic pole toward the charging surface.

14. The wireless charging device of claim **9** wherein the first axial direction is the same direction for all of the sectors.

15. The wireless charging device of claim **9** wherein alternating sectors have opposite first axial directions.

16. The wireless charging device of claim **9** wherein each sector of the annular magnetic alignment component includes one or more arcuate magnets each having a quadpole configuration.

17. The wireless charging device of claim **9** wherein the annular magnetic alignment component includes a gap between two of the sectors.